ABSTRACT OF THE DISCLOSURE

One or more techniques are provided for measuring the motion of an organ in three dimensions. As provided by the technique, the motion of the organ along each dimension may be determined by a suitable methodology. Where sensor-based motion measurements are suitable, one or more sensors may be placed on a patient to measure internal motion of the organ of interest along one or more perpendicular axes. Where image-based techniques are suitable, the motion of the internal organ along a perpendicular axis may determined using pre-acquisition image data or acquisition image data when suitable. Concurrent motion vectors for all three dimensions may be obtained from the motion data acquired for the perpendicular axes by the disparate methodologies. The concurrent motion vectors may be combined to describe the three-dimensional motion of the organ over time. Validation of the motion data may be performed for each of the one-dimensional motion data sets using motion data acquired by image-based methods, or other image-based methods, for a respective axis.